AMERICAN
GAS JOURNAL
Established 1859 Pioneer of the Gas Industry

VOL. 123, No. 8
WHOLE NO. 2634

NEW YORK, SATURDAY, AUGUST 22, 1925

Subscription, $3 Per Year
$4 Canada $5 Foreign

FOR PERFECT GAS CONTROL USE
ACME BRASS WORKS

Users of gas cocks will appreciate the improvements made in Acme Gas Cocks within the past two years.

The Acme Gas Cocks of today are as perfect as human skill and mechanical ingenuity can make them. Casting and machining have been developed and standardized to the highest degree so that Quantity production is secured and uniform Quality is maintained.

To insure perfection we use a patented testing device, of our own invention, which will immediately detect any imperfectly bored cocks, or any tendency to leakage.

The Acme line is most comprehensive. Gas Cocks, in all sizes and styles, for ranges, space heaters, hot plates, water heaters and gas appliances of every kind.

All Acme Gas Cocks are made to comply with A.G.A. and U.G.I. specifications. We also make them to suit your individual requirements if desired.

y of Congress
UG 24 1925
sonian Deposit

We believe the price of Acme Gas Cocks to be unequalled

ACME GAS COCKS

COMPANY MEMBER OF AMERICAN GAS ASSOCIATION

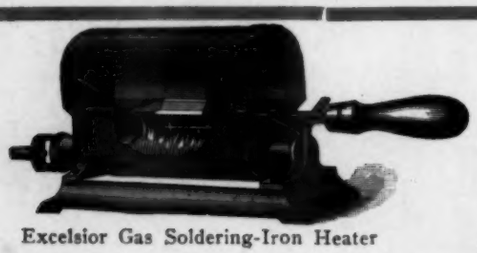
8211 Collins Avenue and Belt Line R. R. DETROIT, MICH.

NEW YORK OFFICE, 150 NASSAU ST.
CHICAGO OFFICE, 79 WEST MONROE ST.

COMPANY MEMBER OF AMERICAN GAS ASSOCIATION

Index to Contents, Page 4

Advertising Index, Page 38



Excelsior Gas Soldering-Iron Heater

Power Blowpipe for Brazing

The "Thorp" Gauge For Testing Pressure and Consumption of Gas.

The Knott Jet Photometer

Gas works should be provided with a Jet Photometer at the outlet of the station meter to show the candle power of the gas it is making; also in the office at the works where the candle power may be observed as it is sent out.

Necessities for the GAS PLANT

Gasoline Torches; Syphon Pressure Gauges; "Thorp" Gauges; Power Blowpipes; Bunsen Burners; Soldering-Iron Heaters; Photometers; Hot Blast Torches.

All the devices enumerated above were designed to make easier the work of the gas man in the plant, or on the distributing lines.

In our long contact with the gas industry, we have learned just what the gas executive and the man in the plant and the man in the field needs, and these devices are

The result of over half a century study of Gas Plant requirements

Yankee Torch for Gasoline. Gallon Tank.

Monitor Heating Burner

E. P. GLEASON MANUFACTURING CO.

37 AND 39 MURRAY STREET
NEW YORK CITY

American Gas Journal

SIXTY-SIXTH YEAR

Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.

S. G. KRAKE, Pres. & Treas C. S. MYERS, Vice-Pres. A. M. GLEASON, Sec'y.

STANTON G. KRAKE, Managing Editor ISMAR GINSBERG, Editor

"MEMBER OF THE AUDIT BUREAU OF CIRC ULATIONS"

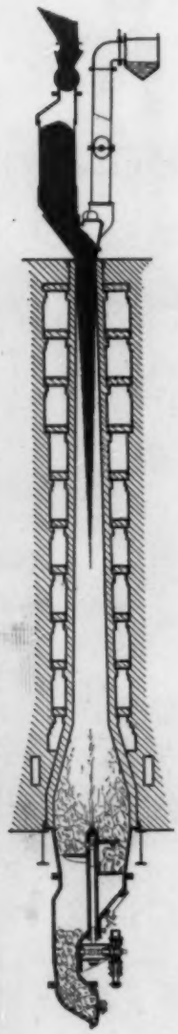
Contents of This Issue

Present Aspects of Coal Carbonization—By S. J. Ramsburg.... 151
Hotel and Restaurant Business—By H. D. Schall..... 153
Welding Gas Mains—By Louis Stein..... 155
As the Journal Views It..... 157
Johns Hopkins University Lectures
The Business of Industrial Gas
Industrial Gas Lessons No. 84..... 159
Pushing Sales of Gas Ranges—By J. B. Dillon..... 160
Progress in Gas Technology..... 161
What They Say and How—By W. H. Matlack..... 162
News of the Gas Industry..... 167

Subscription $3.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents

AMERICAN GAS JOURNAL, August 22, 1925. Vol. 123. No. 8.
Published weekly by American Gas Light Journal, Inc., New York, N. Y.
Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

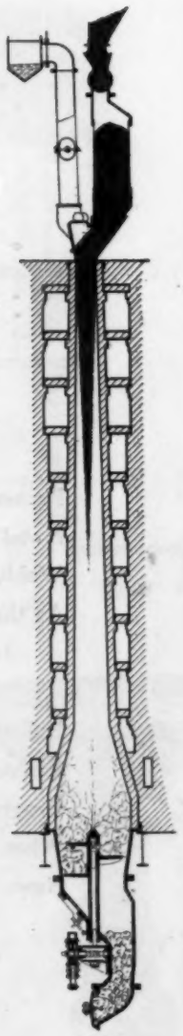
GLOVER-WEST
Vertical Retorts



American Installations

Fitchburg, Mass.
Springfield, Mass.
Pawtucket, R. I.
Portland, Me.
Ottawa, Ont.
Montreal, Que.
Fitchburg, Mass. (Repeat)
Pernambuco, Brazil
Santos, Brazil
Montreal, Que. (Repeat)
Vancouver, B. C.
Victoria, B. C.
Montreal, Que. (2nd Repeat)
Watertown, N. Y.
Malden, Mass.
Vancouver, B. C. (Repeat)
Toronto, Ont.
Portland, Me. (Repeat)
Buenos Aires
Santiago, Chile
Fargo, N. Dakota

Combined Daily Capacity
36,000,000 Cu. Ft.



WEST GAS IMPROVEMENT CO.
of America, Inc.
441 Lexington Ave. New York.

AMERICAN
GAS JOURNAL

Vol. 123. No. 8 NEW YORK, AUGUST 22, 1925 Whole No. 3534

Present Aspects of Coal Carbonization*

A discussion of the by-product coke industry

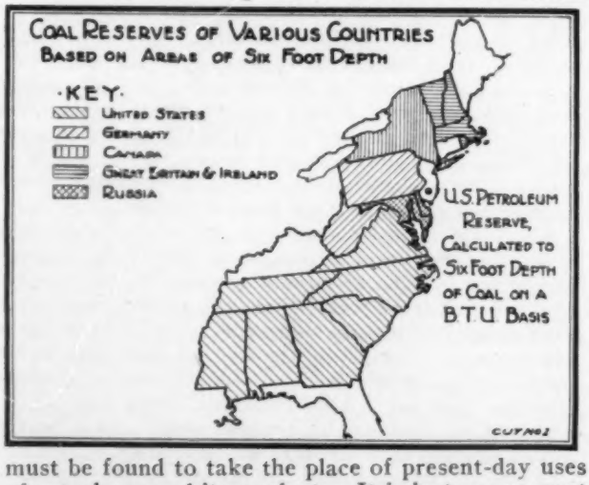
S. J. Ramsburg

IN a recent radio talk given from our Pittsburgh station, KDKA, in connection with a series of industrial talks on "Science in Industry," Mr. F. W. Sperr, Jr., of the Mellon Institute, speaking of the United States, said:

"It has within its borders more high grade coal than all the rest of the world put together, and, more than that, its coal as a whole is much better in quality than that of any other country. We may form a mental picture by assuming that all of the coal in each country is spread in a single 6 foot seam. The coal resources of Great Britain would then cover about the area of the State of Maine; that of Germany would cover the State of Missouri; that of Russia would cover the little States of Connecticut, Delaware and New Jersey, while the coal reserves of the United States would cover the entire States of Virginia, Tennessee, North Carolina, South Carolina, Georgia, Alabama and Mississippi."

It seems to me that this idea of a graphic picture of the comparison is an excellent one, so I have used this idea in having a map made showing the comparison, but have changed the State areas used in order to make the States contiguous. (Fig. No. 1 shows this comparison.)

It would seem, therefore, that in respect to coal reserves we are well prepared. One hundred years ago a great English financier and statesman said that the future belonged to the nation who could produce the most coal. Today we believe that the future belongs to the nation which will make the best use of its coal. It is to be hoped that the care of our coal resources will receive more intelligent and unselfish handling than has been accorded our natural gas and petroleum resources. Future generations will hold the present generation in contempt for its extravagant production of our petroleum. It will doubtless be of interest to compare our petroleum reserves with our coal reserves. Looking at figure 1, you will notice a small circle in the State of New Jersey. According to carefully made estimates, all the petroleum which will ever be taken from the ground in the United States will have a total thermal value equal to the thermal value on a B.t.u. basis of the 6 foot seam of coal spread over the area represented by this circle. With this comparison in mind, it seems unnecessary to point out that in less than a generation, some other means must be found to take the place of present-day uses of petroleum and its products. It is just as apparent that this source must be coal.


COAL RESERVES OF VARIOUS COUNTRIES
BASED ON AREAS OF SIX FOOT DEPTH
·KEY·
UNITED STATES
GERMANY
CANADA
GREAT BRITAIN & IRELAND
RUSSIA
U.S. PETROLEUM RESERVE, CALCULATED TO SIX FOOT DEPTH OF COAL ON A B.T.U. BASIS

Alcohol as a Substitute

A great many uninformed people have thought that alcohol can be used as a substitute. While it is possible to use alcohol with a specially designed engine, the thought of substituting this for the vast quantities of gasoline now used is absurd. For example: the average yield of potatoes, from which alcohol can be made, is approximately 103 bushels per acre in the United States. When 103 bushels

*Abstract from an address read at John Hopkins University, Baltimore, Md., March 25, 1925.

is converted into alcohol, there is secured about 77 gallons of alcohol. Assuming 500 gallons of gasoline as the normal amount used per car per year, it would take 9.4 acres of potatoes to keep each car going. To maintain 20,000,000 cars in operation, the potatoes required would cover 300,000 square miles of ground, or practically every acre of ground on the Atlantic Seaboard.

Our present civilization is built by means of coal and iron. These two are linked by coke, which is manufactured from coal, and is used to make iron. Coke and the by-products obtained in the processes of its manufacture from coal are of such great and far-reaching importance that modern civilization could not exist without them. The future industrial advance of this great Republic is dependent in a very large measure upon the further development of present-day methods for the intelligent conservation and use of our coal supply.

Coal Carbonization

The carbonization of coal results in the formation of coke. This is known as destructive distillation. The word destructive, in the sense as it is here used, relates to an upsetting of the chemical structure, and not a decrease in value.

When coal is subjected to destructive distillation by means of heat, the constituent hydrocarbons of the coal are broken down into other groups, leaving as a residue what is commonly called coke. Nearly a ton of coke is required to produce a ton of pig iron. No substitute for coke is known which could be supplied in the enormous tonnages required by the iron and steel industry. Charcoal, or wood coke, might be used, but it would be necessary to strip the already shrinking forests of the world in order to feed the ravenous furnaces with this fuel.

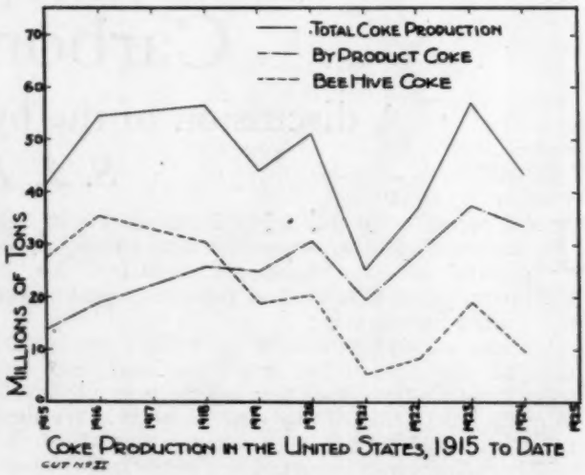
If coke could not be obtained, the cost of producing iron and steel would greatly increase and the world would be obliged to think of those substances in terms of pounds and not tons and thousands of tons. Every phase of human activity today would be affected by an iron or steel shortage.

Coal carbonization, and the manufacture of coke and other resultant products is, therefore, a most important feature of our industrial life and touches the comfort and well-being of every individual. Commercially, the manufacture of coke is about a century old. Our forebears learned that coal would burn. Many people burn soft coal today, and think that the best use for it. The discovery, long afterwards, that coal would become coke when heated out of contact with air, was the next step. The third and greater advance was the discovery that valuable by-products could be secured when coal was heated properly, but this came many years later.

For many years coke was made in wasteful bee-hive ovens, a great many of which are still being operated. These ovens burn up all of the gas, a part of the coke and all of the ammonia, tar and benzol products. The smoke makes a costly nuisance over wide areas. Many years of technical development were necessary before successful means for recovering the by-products were found, and it was only about 15 years ago that the by-product coke industry began to flourish in the United States. It has become one of the great industries of the country. Last year over 40,000,000 tons of coke were produced by the by-product recovery process, the bulk of which was used in the iron and steel industry.

The Example of Baltimore

In no place in the United States is there a better exemplification of the benefits derived by a community from the use of the by-product ovens than in the City of Baltimore. Last year the total amount of gas sold amounted to 10,681,599,000 cubic feet, and the average price at which this gas was sold was 79.35c per 1,000 cubic feet. Forty-four per cent of this gas came from the modern oven plant at



Comparison of By-Product and Bee-Hive Coke

Sparrows Point, of the Bethlehem Steel Company. It is safe to say that the average selling price in all of the other great cities of the East was not less than 95c per 1,000 cubic feet for an equivalent thermal content. On this basis the saving brought to the people of Baltimore by the use of this gas was not less than $1,671,576 in one year. With the probably increasing cost of gas oil in the future, this saving will become more marked.

The Bee-Hive Ovens

The wasteful bee-hive ovens have already been mentioned. These ovens are for the most part dome-shaped brick structures about 12 feet in diameter and 7 feet high, holding approximately 5 tons of coal. From 48 to 72 hours are required for burning off a charge. Those of you who have traveled in Southwestern Pennsylvania have, perhaps, seen the long lines of these ovens belching out smoke and flame. When a ton of coal is coked by this process, all of the ammonia is lost and in addition the following quantities of fuel are consumed: 7,000 cubic feet of gas, 9 gallons of tar, 4 gallons of benzols, 100 pounds of coke. All of these would have been saved had the by-product coking process been used. The fuel value of these products amounts

(Continued on page 163)

Hotel and Restaurant Business*

The value of such business to the gas company

H. D. Schall

Vice-president Standard Gas Equipment Corp., Baltimore, Md.

THE field in which to sell heavy duty hotel gas ranges and other appliances where food has to be cooked in large quantities seems to be almost unlimited.

In some cities the gas companies have gone after this business to a greater extent than others, and from observation those who have had the best success in getting this desirable business are those who have men specially trained, and devoting their entire time to securing this class of consumer.

Before a campaign is started to secure hotel, restaurant, and other large cooking business, a complete analysis of the territory should be made covering all cooking operations of this character—the class of fuel, the type of appliance used, the cost of operation, including labor and everything entering into that cost, at what price levels they should change from one fuel to another, and best methods of utilizing and compiling all information that can be obtained which has a bearing on or is incident to the use of fuel, and the fuel costs of production.

Surveying the Field

This should then be carefully analyzed by some engineer or person familiar with the business to determine the existing fuel costs per unit of finished product, and economies which could be secured by better fuel utilization and combustion methods. These economies may be effected by any one or a combination of factors such as change in fuel, more efficient fuel utilization, reduction in labor costs, reduction in spoilage, improved quality and increased capacities.

It also classifies the remaining operations showing at what price levels gas and competing fuels these operations can be converted into gas fired equipment. This allows the gas company to determine the potential business of its territory so that it can, with a greater degree of certainty, budget its opportunity and forecast the growth of its load.

City Gas Competition

City gas cannot compete at the present time with any other fuel on a B.t.u. basis. The customers are not going to study out a means of changing their equipment to suit the fuel. There is only one solution, and that is the development of a means of utilizing that gas so efficiently in that particular case in the realm of other fuels and familiarizing ourselves so thoroughly with that prospect's needs and methods that we can make up the difference still intervening by utilizing to the fullest extent the advantages still inherent, to improve his methods of operation.

The industrial survey, properly organized, does not displace in any particular the function of your new business department. It is merely supplementary to their sales work. It gives them the engineering data from which sales work can be carried out in intelligent and, therefore, effective manner.

The above suggestions refer, of course, to larger cities. In the smaller towns more simple but definite plans should be employed.

The gas industry lacks a definite, well-thought out, well-organized sales plan for its product in the industrial field. We literally stumble on to propositions that the gas company has never considered.

The above material was largely taken from a paper read by Mr. Henry Loebell, president of the Combustion Utilities Company, before the Eastern States Gas Conference at Newark, N. J., and has been utilized with the personal consent of Mr. Lobell.

The paper referred to was reproduced in the Saturday, May 2nd, edition of The American Gas Journal, an excellent paper. I would recommend that all gas men read it.

The Coal Operated Kitchens

It is surprising how many coal equipped kitchens are in operation, and are being installed in many sections of the country at the present time. There is still a big percentage of hotel and restaurant operators and those in charge of large institutions who persist in thinking that it is impractical to do large volume cooking with gas.

In most cases they make a comparison on a basis of a pound of coal as against a cubic foot of gas and do not take into consideration the many advantages gas equipment has over coal, nor do they figure in all the expenses that actually should be charged against the operation of their coal and charcoal appliances.

Where coal burning appliances are used there is a constant expense for supplying new tops, grates, fire brick linings, and a general overhauling of the appliances once or twiec a year. The daily handling of coal and ashes which creates considerable dirt and annoyance, to say nothing of the time spent by a man doing this work, plus his keep.

Disadvantages of Such Kitchens

It is a fact that where coal burning appliances are used, it makes the kitchen hotter for the chefs to work in, as the room never has a chance to cool off even in non-rush hours, for the coal fires have to be kept continually burning and in readiness for the next meal. The heat from the coal ranges going into the flues which run up through the house very often has a tendency to heat the guests rooms,

*Delivered at the 1925 Convention of the Canadian Gas Association.

especially in the summer when they should be kept as cool as possible.

Recently a case reported, where coal appliances were used made several rooms over the kitchen so hot that most of the year they could not be rented. The rental loss of these rooms, figured at one dollar per day, would pay for considerable gas in a year. The occupants of other rooms facing on the rear court of this same building were annoyed early in the morning by men carrying out ashes and the unusual noise made in handling ash cans. The pointing out to the manager of the hotel these two facts had more to do with changing his kitchen over to gas than any other argument presented to him, and it was only by chance that the gas appliance salesman learned of these conditoins by overhearing guests complaining to the room clerk while waiting to see the manager, whom he had tried for nearly two years to interest in a gas installation.

The selling of heavy duty or hotel gas ranges and appliances to replace coal equipment requires hard work, and if the salesman is persistent and studies each case to find out where the weak points are, he will sooner or later be succesful. Many of the best gas installations in use today took several years of constant effort on the part of the gas company before the desired result was obtained.

Gas the Ideal Fuel for Hotels and Restaurants

Gas is the ideal fuel for hotels and restaurants and, wherever food is cooked in large quantities, or in great varieties. The very nature of this fuel adapts itself to meet any cooking requirement. Any desired heat can be obtained almost at a moment's notice by the simple operation of turning on or off a valve. It is a time and labor saver, it is a clean fuel, and most efficient for either slow or fast cooking, and economical as to cost when used in the PROPER KIND OF APPLIANCES for the work to be performed. The kind of appliances used is a big factor as to whether the operating of fuel cost is to be low or excessive.

The subject so far has been mostly on the converting of coal operated kitchens over to gas, but there is still another field which should be given attention, and that is the replacing of old types of gas equipment for those which are more modern, efficient and economical in their operation.

One of the best advertisements gas as a fuel can have is satisfied users, therefore, the lower their operating costs are the more gas they will be inclined to use for other purposes as well as advising others to use it. This being a fact, it is logical then to see that the appliances in use are the most efficient and economical, and the old types discarded.

What to Do With Old Equipment

The argument will possibly arise when the prospect is approached on the subject to throwing out his old equipment, that it is still in good condition and would last him for several years more. However, if you can show him that his work can be done better, quicker and for less cost, he will be interested, and especially so if he can be shown that the saving in gas for a period of twelve months would probably pay for the new installation. This is being done all over the country by installing the newer and proper kinds of appliances for the particular work to be done.

Figures given us of a small kitchen in a restaurant in Milwaukee where they serve many hundreds of people a day are most interesting. In November, 1922, a type of range which has been generally used for some years was discarded and replaced by one of newer construction. From December to the following April they saved 402,700 cubic feet of gas, which in money value was $538, and in the following three months the saving paid for the entire new installation.

Figures on Costs

It would be safe to say that it would be difficult to find another investment that would show so good a return. Data given by Princeton University where the kitchen equipment was converted several years ago from coal to gas fuel for cooking is of interest. The approximate number of meals served to students from January 1st to July 1st was 568,080. The average monthly gas bills for the same period was $268, which would figure (.0029)) about one-quarter of a cent for fuel per meal cooked. This figure included as well all the baking of bread, rolls, pies, cake, etc. There are about 1,400 students who eat at the University dining halls, and to give some idea of the amount of several kinds of food that has to be purchased and cooked, will quote data given by the manager:

"The eggs consumed in a school year of nine months by the students, according to figures compiled, if placed end to end would form a line reaching from Princeton, N. J., to New Haven, Conn. The average student eats two and one-half times his own weight in meat during the academic year. The eggs consumed during the nine-month school year are 324,000 or 3,000 dozen per month. During this period 450,000 pounds of meat are used which would be about 23 tons per month. In addition to this are the vegetables, breads, and other foodstuffs, all of which are cooked with gas."

Construction

Gas ranges for hotel work must be built of the best materials and embody the best workmanship, as they are subjected to long hours of use and in most cases, very rough handling.

Gas ranges for heavy duty work must be constructed from the ground up with the idea that the fuel to be used is gas and not liquids or solid fuels such as coke or coal. Ranges designed to use the latter are not capable of giving quick results, nor can they be controlled from a moderate to an intense heat with the ease of a range scientifically

(Continued on page 165)

Welding Gas Mains

A description of methods used by a gas company

Louis Stein

Gas Engineer, Northern States Power Company, Minneapolis, Minn.

MORE attention should be given in the smaller properties to underground structures, especially in view of the situation that more streets from year to year are being paved, and, in many cases, even the alleys are being paved, so that careful thought should be given to the kind of structures we put under this paving, to the end that these structures will require least attention and the very minimum amount of maintenance. It has been our experience, in common with many others who are charged with the operation of small distributing systems, that we must tear up, too frequently, paving and bear the expense of excavation for the sake of repairing breaks in both cast iron and steel mains of the threaded and coupled type, caused by their very inherent weakness. Guided by the fact that we felt it was good, sound mechanics, and, further, by the experience obtained in several of our related companies, we adopted as standard practice last year the welding of all steel mains installed in our properties.

A Welding School

Put into practice, this new policy required the training of our own welders; therefore, we inaugurated our first welding school, which provided two weeks of pipe welding under very competent instructors, and we were able to send our own men back to their respective properties, not only capable of making up our welded joints, but also thoroughly able to make up all necessary fittings in the field.

The result of the first year's experience was extremely encouraging, not only as to the class of work done by our own men, but as to the resultant costs as compared with cost of other types of installation. On one particular job, where unit costs were kept in order to determine cost of this type of installation as compared with the installation of threaded and coupled pipe, there was a very marked saving. The job in question involved the installation of nearly 8,000 feet of 4-inch steel main for high pressure work, and it happened that when the estimate was first made no announcement had yet been made as to the adoption of welding practice. The estimate, therefore, was based upon the installation of 4-inch steel pipe with threaded and coupled joints. After the installation was completed and all the charges returned against it, we found that we had saved very nearly $3,000 as compared with our original estimate.

Saving Was Considerable

This saving, however, may not be entirely ascribed to welding; some of it was due to the adoption of somewhat better practice in excavation and backfilling. It is safe to say, however, that the majority of it, at least, was due to the fact that the job was a welded piece of construction. In the entire length not more than four slight leaks were found when the pipe was tested at approximately 65 lbs. per square inch. You will readily see that this could be nothing else but encouraging, when it is considered that this particular installation was the first of its kind installed under our new policy.

The manner of laying the pipe in the ditch absolutely eliminated the necessity for so-called expansion joints, which is another point in favor of welding, and we are absolutely certain that this pipe and all others that we have installed by this method need never be touched until such time as they are worn out.

Welding of Cast Iron Pipe

Early this year the second annual welding school began and ran for two weeks, the instructors devoting their efforts to teaching the welding of cast iron pipe joints, in addition furnishing a review to the older welders in steel welding. The primary object of teaching the welding of cast iron pipe was to make it possible for us to install in several of our properties cast iron mains in as proficient a manner and with the same leak-proof results as steel. Soil conditions in several of our divisions make it imperative for us to use cast iron to the exclusion of other material. Owing to the progress which has been made in the manufacture of centrifugally cast pipe, it is our opinion that in the not very distant future this kind of cast iron pipe will be as cheap or cheaper per foot than corresponding sizes of steel pipe. This year, for example, in the predominating size of four inches, the per foot costs of centrifugally cast iron is almost on a parity with four-inch steel. Larger volume of production, we think, together with the furnishing of the various sizes in lengths of 16 feet or longer, will in all probability make it desirable for many properties to utilize this kind of pipe in preference to steel, especially if tobin bronze welding is adopted, and more especially in cases where soil conditions would require that steel pipe, if used, be coated and wrapped. In many cases where steel is now used under bad soil conditions, it has been found necessary on account of high pressure gas distribution. In such cases it is our belief that this need no longer provide a reason for the use of steel pipe in soil which is filled with deteriorating agents, especially if favorable cost comparisons will continue to exist as between cast iron and steel—that is, cast iron of the centrifugal type with the thinner walls and higher tensile strength.

Bronze Welded Pipe

The year 1925 marks the first time in the history of our company that cast iron pipe will be installed with tobin bronze welded joints. The pipe is being purchased in nominal 12-foot lengths with plain ends for welding. This is somewhat a contrast to the

bevelled ends which we require on steel pipe. It is not expected that the cost of welding, per joint of the cast iron, will compare as favorably as with steel, for the reason that it takes considerable longer to make tobin bronze joints than it does steel joints. We may find that there will be a saving in gas, owing to the fact that the tobin bronze collar is made at very considerably lower temperatures than those which exist in the case of steel welding.

A Cost Comparison

While it is not strictly consistent with the subject under discussion, the matter of welding cast iron pipe is brought to the attention of the meeting, for the reason that it is felt a good many executives and engineers might be induced to give more study and thought to the matter of proper material and workmanship in the matter of installing gas mains. Each property, in arriving at a solution of its distribution problems as relating to mains and their installation, would be obliged to study its own local conditions in order that it might determine, everything considered, whether a given main should be installed of steel or cast iron. The thought is illustrated by the following case, based upon actual installation costs. The property referred to distributed both high and low pressure gas and the soil in which its mains are installed makes it necessary to replace all steel mains installed which are coated and wrapped approximately every 15 years, in some cases 10 years, and certainly in not very many cases 20 years.

Average cost per ft. of 4-inch cast iron main installed (last report available).....	$1.75
Average cost per ft. of 4-inch steel welded installed, including wrapping.....	1.43
Difference in cost per ft. between cast iron and steel welding.....	$0.32

Interest charges at 6 per cent (compounded annually) on foregoing difference of 32 cents:

At the end of 5 years.....	$0.1106
At the end of 6 years.....	0.1362
At the end of 7 years.....	0.1634
At the end of 8 years.....	0.1922
At the end of 9 years.....	0.2227
At the end of 10 years.....	0.2550
At the end of 11 years.....	0.2899
At the end of 12 years.....	0.3263
At the end of 15 years.....	0.4491
At the end of 20 years.....	0.7080
At the end of 25 years.....	1.0546
At the end of 29 years.....	1.3145
At the end of 30 years.....	1.5183

Depreciation per foot of cast iron main and steel welded pipe, 4-inch, on basis of 1 per cent for cast iron and 5 per cent for steel:

Years	Steel	Cast Iron
5	$0,357	$0.0875
6	0.429	0.1050
7	0.50	0.1225
8	0.572	0.1400
9	0.644	0.1575
10	0.715	0.175
15	1.072	0.2625
20	1.43	0.35

Discussion of Tables

From the above table it will be seen that the difference in depreciation per foot at the end of 20 years is $1.08 in favor of cast iron.

From Table No. 1 it will be seen that the interest charges at the end of 20 years on the original difference per foot of 32 cents installation cost is $0.7080 against cast iron or in favor of steel, from which it will be seen that the net saving per foot in favor of 4-inch cast iron as against the 4-inch steel welded is $0.372; expressed in another way, the saving on the original per foot investment in 4-inch cast iron pipe is 21.2 per cent.

All of the above is based on an assumed life of 20 years for steel and 100 years for cast iron. It is believed that the cost of installing 4-inch cast iron with bronze welded joints will be less than the present cost of installing with bell and spigot joints regardless of whether cement or lead is used as jointing material. It certainly will not exceed the cost of installing cast iron with bell and spigot joints and will provide a cast iron installation capable of withstanding comparatively high distribution pressures, something that is sought for in the property used as an illustration in this case.

Discussion at Conclusion of Talk

At the conclusion of the talk a large number of questions were asked pertaining to safety, the bagging off of mains, installation of services, the amount of pipe which could be welded at one time for installation, testing, etc., all of which were answered and illustrated with photographs in a general way. The question pertaining to the amount which could be welded at one time prior to lowering into the ditch was answered by saying that every job of welded pipe installation is a problem in itself and different from any preceding job of a similar character, and would have to be met with a great deal of common sense by those actually undergoing the experience of installing welded mains. It goes without saying, of course, the more pipe that can be welded on top of the ditch, the cheaper will be the installation, because there will be fewer cases of what is termed overhead welding, for which "bell holes" have to be dug to accommodate the welder.

Testing of high pressure installations, of course, should be made at pressure higher than those which will be used in the distribution of gas through the main being installed. In the case of low pressure mains, while no worry need be felt regarding the leakage which might exist or be indicated under ordinary working pressures, it is advisable to utilize some sort of portable compressor to test joints for leaks.

Installing Services

In the matter of installing services, the practice of drilling and tapping and of using saddles has been discontinued. Close nipples are welded on to the main, whether it be steel or cast iron, and a much more substantial and stronger connection is thus made, besides one that is less expensive than the pre-

(Continued on page 158)

As The Journal Views It

JOHNS HOPKINS UNIVERSITY LECTURES

The leading article in this week's issue of The American Gas Journal is the first lecture of a series of four which were delivered to the students of the gas engineering course at the Johns Hopkins University in Baltimore. The lecturers were Messrs. Ramsburg, Hurlburt, Loebell and Fieldner. The first lecturer, Mr. Ramsburg, talked on present aspects of coal carbonization and the article referred to above is an abstract of that lecture.

All of these lectures are too long to be published in full in The American Gas Journal and hence a detailed abstract of each will appear. However, The American Gas Journal has been glad to have reprints made of the lectures in their entirety to the number of 500 for the convenience of the officers and students of the University.

These lectures were delivered by arrangement of Mr. Wilbur J. Huff, Professor of Gas Engineering at Johns Hopkins University.

THE BUSINESS OF INDUSTRIAL GAS

It has been mentioned more than once in the columns of The American Gas Journal that as the industrial phase of the gas business develops, the gas company will find itself more and more in a position similar to other industries. The gas company will continue to lose its monopolistic character and become subject to business conditions existing in the country. It will no longer be said that the gas company can keep its equipment running, no matter what business conditions are, and those who will use the larger part of the gas company's output will be not domestic but industrial customers. Industrial customers will not use gas when their plants are not operating.

In a recent issue of The American Gas Journal it was pointed out very clearly what an important feature of industrial gas development this is. It was also shown how closely the consumption of gas for industrial purposes follows the consumption of basic commodities, such as bituminous coal and pig iron. Business men know that there are certain industries in the country which can serve as indicators of changes in business conditions. Bituminous coal and pig iron are two very good business indicators. As has been corroborated by actual experience, the consumption of gas for industrial purposes, even at the present day, tends to follow closely the pig iron and bituminous coal consumption. It must then be evident to every gas man that industrial gas business will not be good unless general business conditions are good.

The point to be emphasized is, what is the gas industry going to do to adjust itself to this condition? Is it going to allow itself to bear the burden in its entirety, or will attempts be made in some way to compensate for the reduction of sales due to bad business conditions that will certainly occur from time to time in industrial gas business?

It may be pointed out here that the electrical industry went through a similar stage of development. At the time that electricity came to be used largely for power purposes, the electrical industry found itself, as the gas industry is finding itself today, confronted with the situation of shutting down existing equipment in periods of depression. For, if this equipment still went on accruing charges and figuring as overhead on the books of the company, to make a profit on the investment would be almost an impossibility. Of course, it is known that the change that was made which enabled the electrical industry to develop as greatly as it did, was in the rate, and this is what is necessary in the gas business.

The gas rate must change. It must be constructed in such a manner that it will take care of business depressions and enable the gas company to earn a fair return on its investment. The industrial consumer of gas must be educated to realize that he must pay for equipment that is maintained for his particular benefit, and that on equipment which is not running, due to the fact that his own plant is shut down, he must expect to pay the interest charges. In fact, it must be indicated to him that nothing more is expected of him than he in turn expects of his customers. It is known that every manufacturer figures his profit high enough to take care of the dull times when his equipment and personnel are idle and are piling up interest charges and overhead expense on his books.

This seems to be the sole salvation for the gas

company, if industrial business is to be developed, as it can and must be. It is not too much to ask of any business man. Experience has shown that it is a comparatively easy matter to convince the manufacturer that not only is this practice a proper one, but that it is actually to his advantage to have it applied to his particular case. It is a matter that takes a certain amount of courage, initiative and will to put the plan across, and there is no question at all but that the gas industry possesses the ability to do this. It seems clear that the path which gas must travel, if it is to become the universal fuel of industry, is thus indicated in unmistakable fashion.

WELDING GAS MAINS

(Continued from page 156)

vious method of drilling and tapping. In the case of live mains, the nipple is welded and a hole drilled through with a drilling machine after the nipple has been welded, and in the case of mains which are not live the hole is burned through with a cutting torch and the nipple then welded on, after which for 1¼-inch service, a 1¼x1¼x1¼ tee is used, in conjunction with the regulation street ell. When we began this practice we had a large number of 1¼-inch street tees on hand. These were used up and are being used up by inverting and capping the male threads. Close nipples welded on to cast iron mains for service connections are welded with tobin bronze.

The writer desires to publicly acknowledge the courtesies and co-operation extended by the distribution departments of the San Diego Consolidated Gas & Electric Company, San Diego, Cal., and the Oklahoma Gas & Electric Company, Muskogee, Okla., which so materially assisted in giving our properties the right sort of start in this work.

A NEW COKE PUSHER

A new coke pusher for use in medium size gas plants has been put on the market by the Parker Russell Mining & Manufacturing Co., St. Louis, Mo.

Figure No. 1 shows the machine installed in a gas works, and it is operated by one man only. The pusher is equipped with an electric motor and operates by suitable gears and clutch couplings both the pusher ram and the track wheels. Automatic stops are provided to limit the stroke of the ram. The spotting of the pusher in front of a retort is done without difficulty, either the current breaker or the foot brake, both of which are provided, can be employed in this operation.

Fig. 1

Fig. 2

The spotting of the pusher in front of the vertical rows of retorts is done by hand. All other operations such as travelling up and down the floor and pushing the coke from the retorts is done by electric motors. A top row throughout the entire length of the house would be discharged one retort after the other. Then the ram is either raised or lowered to accommodate the next tier of retorts.

Figure 2 shows the generator side of the lower part of the benches, also the coke quenching wagon. The clinkering doors are of the double door design. This view also shows the primary and secondary air control. Superheated steam acts as an injector controlling the amount of primary air admitted and the superheated steam mixes with the primary air before entering the fire box and this prevents the formation of hard clinkers. The amount of primary air admitted into the bench is controlled by means of the superheated steam jet and is therefore under perfect control at all times.

Figure No. 3 shows the Congdon Scrubber Standpipe System in operation. This system has been in use in many of the larger gas plants for the past ten years. It positively does away with stopped standpipes and lessens the retort house labor as there are no men required to bull the standpipes or clean them. When this system is used, the retort house is always clean and smokeless. Old benches as well as new ones can be equipped with this system with little difficulty.

Fig. 3

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT YOU CAN DO IT BETTER WITH GAS

Lesson No. 84

Heat and Change of State

THE BOILING POINTS OF VARIOUS SUBSTANCES

It has been said that every substance, no matter whether it exists as a gas, solid or liquid, at ordinary temperatures can be made to congeal and freeze. It is similarly true that every substance that possesses either the solid, liquid or gaseous form at atmospheric temperatures possesses a certain definite boiling temperature. In all cases boiling temperatures are understood to refer to standard pressure, 760 millimeters of mercury, 32 feet of water or 15 pounds per square inch.

The following tabulations give the boiling temperatures of various substances. Unless otherwise stated, these boiling temperatures refer to the pure substance. This is important, for the same reason that it was in the case of the fusion temperatures, for the admixture of foreign substances with the liquid will affect the temperature at which it boils. The same consideration applies to the solid which is first fused to give the liquid and then heated to the boiling temperature. Then again boiling temperature in these tabulations mean strictly the temperature at which ebullition of the liquid takes place, although evaporation may begin at lower temperatures, as has been explained above.

Boiling Points of Chemical Elements

Aluminum	1800° F.
Antimony	1440
Argon	minus 186.1
Arsenic	
gray	449-450
black	360
yellow	280 to 310
Barium	Boils in a vacuum
Bismuth	1430
Boron	Volatiles without melting in the electric arc
Bromine	61.1
Cadmium	778
Caesium	670
Carbon	3600 (computed) Volatilizes without melting in the electric arc
Chlorine	minus 33.6
Chromium	2200
Copper	2310
Fluorine	minus 187
Helium	minus 267
Hydrogen	minus 252.6
Iodine	200
Iron	2450
Krypton	minus 151.7
Lead	1525
Lithium	1400
Magnesium	1120
Mercury	1900
Neon	minus 239
Nitrogen	minus 195
Oxygen	minus 182.7
Ozone	minus 119
Phosphorus	288
Potassium	712
Rubidium	696
Selenium	690
Silver	1955
Sodium	750
Sulphur	444.7
Tellurium	1390
Thallium	1280
Tin	2270
Zenon	minus 109.1
Zinc	930

Boiling Points of Various Substances

Almond oil, bitter	180° C.	
Acetic acid		245° F.
Air		minus 311
Alcohol, grain		173
Alcohol, wood		150
Ammonia		minus 37
Acetone	56.1	
Ammonia, acqua		140
Anthracene	360	
Benzene		176
Benzaldehyde	79.9	
Carbon disulphide		118
Camphor	209	
Carbon tetrachloride	76.7	
Carbolic acid	182	
Chloroform	61.2	142
Cyanogen	minus 21	minus 6
Coal tar		325
Carbon dioxide	minus 78.2	

Cresol	202		Petroleum		316
Ether		915	Sal ammoniac		257
Formic acid	100.8		Paraffine wax, soft	350 to 390	
Fusel oil		269	Paraffine wax, hard	390 to 430	
Gasolene	70 to 90	175	Salt, saturated sol.		226
Glycerine	290	554	Sulphur trioxide	46.2	
Hydrogen sulphide		minus 101	Sugar, cane	293	
Linseed oil		597	Sulphuric acid		590
Naphthalene	218		Turpentine oil		315
Naphtha		185	Varnish		600
Nitric acid		248	Water		212
Olive oil	300		Whale oil		630

PUSHING THE SALE OF GAS RANGES

J. B. Dillon

The Public Service Company of Colorado at its stores in Denver, Boulder and Fort Collins have been offering a well-known make of gas range, and a combination range at 95 cents down and 15 months to pay the balance. Smaller ranges were offered at as low as $40, the larger ones $50 and upward. To all purchasers of ranges above $50, a breakfast set of dishes were given.

A full page of the newspapers were used to illustrate the ranges and tell of its merits. The "Why" of the gas range was told as shown herewith:

A Big "Why"
to buy your range of your Gas Company
QUICK SERVICE!
and usually "No Charge"
At your Command—Whenever and Wherever You Call
THAT'S YOUR GAS COMPANY
—When there's too much or too little Gas;
—When there's a leak to be mended;
—When you don't "understand" your range;
—When your baking "burns" on one side and is "raw" on the other;
—When "Everything is Wrong" and company's coming and there's lots to do.
Your Gas Company Understands and Will Help You Out
Big Crowds Will Come —And Many Buy
All will have smiles on their faces when they leave, and a friendlier twinkle in their eyes.

STOP MAKING ADVERTISING YOUR TOY

A PRINTING company in St. Louis puts forth some peppy stuff in their house organ, "Common Cents, Sr.," and here's one that advertising gas men may wish to pass on to the boss when the subject of employing an experienced and competent advertising man comes up:

The discovery by irate wives that men are merely "little boys grown up" has been confirmed. Now anybody may have this truth demonstrated any day in the week by observing sountless business men make play of the business of advertising.

Here is a level-headed retailer, old enough to know better, and really clever at selling shirts, making mud pies of his advertising because he considers it a fascinating "game." And such perfect mud pies as the little bellow turns out, too. Look at 'em.

You might look at them now that your attention is directed that way, but it is gravely doubtful whether any real prospects of this retailer will take the trouble to look. His advertisements are in competition with a staggering number of others far more attractive, far more informative, and it's no wonder that the public passes on.

Now this is a little boy grown up, too. He is a manufacturer, and knows his business. But not the advertising business; yet he naively plays a blue pencil across a page of professional advertising copy in utter disregard of the principles established by the experience of hundreds of trained advertising men and the expenditure of millions of dollars.

Business men engaged in this pastime wouldn't think of making playthings of law, or medicine, or surgery, or any other profession requiring years of study and practice for the most rudimentary knowledge. Occasionally one does, but to the delight of newspaper editors and columnists.

Witness the antics of the St. Louisian who recently "made" the first page by pleading his own lawsuit to recover two $1,000 bonds from his wife. He lost the suit, but that is not altogether the main point. So unusual was his procedure in "going to law"—sans lawyer—that it was a matter of important news for several days.

Advertising is not a toy, a plaything for the amusement of anybody. It is more expensive, as a pastime, than polo.

Stop making advertising your toy, if you want it to reach full effectiveness. Employ competent assistance; then co-operate strictly by supervision.

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

DETERMINING THE COMPOSITION OF GAS

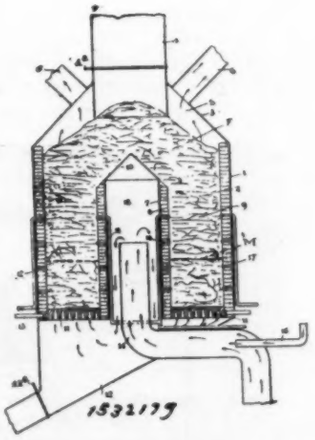
SWISS patent No. 137,236 relates to an apparatus for the determination of the composition of mixtures of gases. This apparatus works on the principle that the thermal conductivity of the gaseous mixtures is dependent on its composition and on a body located in that mixture and elevated to high temperature. Accordingly, a metal wire is connected with an indicating device and this metal wire is heated by means of an electric current which is maintained constant. The wire is inserted in a stream of a gaseous mixture which is being analyzed. The speed of this stream of gas maintained constant.

WATER GAS

IN the manufacture of water gas, it is necessary for the blow and run to follow one another at predetermined intervals, and in this invention automatic mechanism is provided for controlling or operating the actuating valves in proper sequence and at the proper time. If any valve sticks or does not complete its proper movement, the cycle is automatically stopped so that no succeeding valve can move. The danger of explosion is thus eliminated. At the same time, the apparatus automatically indicates which valve has failed to operate. In addition, if any valve does not move at the proper speed the cycle is automatically stopped, and the stoppage is also indicated. The apparatus also provides for the automatic shutting down of the plant, and the indication of this fact and of the valve which has failed. The plant may also be shut down automatically in the event of failure of power driving the automatic mechanism. The timing of any or all of the operating valves may be modified when required, to obtain the most efficient conditions for making water gas, and any of the operations can be transferred from automatic to hand control when required, the valves being interlocked to follow one another in the desired sequence. The mechanism is described in detail.—(British Patent No. 229,399.)

GAS PRODUCER

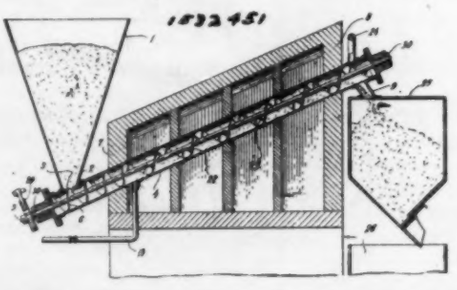
A GAS producer comprising an outer casing and an inner casing defining a fuel space between the two casings, a grate supported by the casing, a lining of fire resistant material provided on the inner wall of the outer casing and on the outer wall of the inner casing, means for supplying a heated combustion supporting gaseous fluid to the



inner casing which is distributed to the fuel between the inner and outer casings, pyrometric means embedded in the walls of the inner casing and the walls of the outer casing for maintaining a constant temperature within the gas producer, and means for discharging the gases produced from the fuel.—(United States Patent No. 1,532,179.)

GAS RETORT

THE combination with a retort shell, of a fire-box in which fuel is burned for heating the shell, means for feeding material to the retort, means for conducting products away from the retort, baffles for causing one end of the retort to be



heated more highly than the other by the fire-box, and a treating device through which the gases pass for treating the gases coming from the retort also heated by said fuel.—(United States Patent No. 1532451.)

What They Say and How

Securities sold by direct advertising

William H. Matlack

MANY of the gas companies selling securities are large users of direct mail advertising. The Laclede Gas Light Company stock was recently oversold and the advertisement was largely by direct mail. Reproduced on this page are pages from two of the circulars used by the Laclede Securities Co., the marketing company. It will be noted that the main selling theme was based on the fact that the Laclede Company has been serving St. Louis since 1837, a period of eighty-seven years. The inside of the folder told of the exceptional investment opportunities afforded by the securities and then brought out, in a most forceful manner, the physical value of the properties, which after all is what the average, small unit buyer of public utility securities is most interested in.

The Illinois Power & Light Corporation uses a similar theme and, too, they do not overlook the fact that I. P. & L. employees all buy I. P. & L. securities. That is a strong point in the eyes of the investor, too, for he reasons, it must be a pretty good concern, if the employees are buying stock.

PRESENT ASPECTS OF COAL CARBONIZATION

(Continued from page 152)

to over 25 per cent of the original fuel value of the coal, to say nothing of the additional chemical value of the products wasted. In 1923, 30,000,000 tons of coal were wastefully coked by this method. In the same year, 54,000,000 tons of coal, or more than 1,000,000 tons per week, were coked in by-product recovery coke plants. Their contribution to American industries may be judged from the quantity of by-products produced: 37,500,000 tons of coke, 601,000,000,000 cubic feet of gas, 441,000,000 gallons of tar, 1,150,000,000 pounds of sulphate of ammonia, 105,000,000 gallons of benzols. Consider what becomes of these tremendous quantities of products.

Coke

About 80 per cent of the coke made in 1923 in by-product ovens was used in blast furnace operation, and 5 per cent was used in foundries. Thus 87 per cent went into the manufacture of iron and its ultimate products. About 6 per cent was used in various and sundry industrial operations and 7 per cent went into domestic use. This 7 per cent, incidentally, was no mean quantity since it represented 2,637,000 tons. While this appears to be a great quantity of coke when expressed in tons, it is estimated that in 1923 there were about 40,000,000 tons of anthracite and 75,000,000 tons of bituminous coal used for domestic heating. The bituminous coal so used was about 12.1 per cent of the total bituminous production.

If one were delivering this talk in a western city such as Cincinnati, St. Louis, Chicago or Pittsburgh, one could dwell at length on the almost criminal waste of bituminous coal and the consequent losses caused by the dirty atmospheric conditions which follow its use for domestic purposes.

Coal With Its Face Washed

Someone has said that coke is coal with its face washed. It gives off no smoke or soot when burned. It is clean and low in ash. On account of its lighter weight it is easier handled, although this means that a given weight occupies a greater volume. Since there is being consumed 75,000,000 tons per annum of bituminous coal as domestic fuel and approximately only 3½ per cent of this amount of domestic coke being sold, it is apparent that the opportunities for domestic coke are very great and the economic possibilities enormous.

The by-product coke oven conserves our resources not alone by saving the by-products, but also because the products can be employed more efficiently than the material which would otherwise be used. For example, the United States Bureau of Mines has shown that .73 of a ton of coke made from a given coking coal will do the work of a ton of that coal in domestic heating. In other words, if the coal used in domestic coke were first put through the by-product ovens, the by-products would be a net gain (less operation and capital charges), and the amount of domestic fuel would be handled with approximately 20,000,000 tons less fuel. Following is another example of the savings made possible.

Gas

Approximately 601,000,000,000 cubic feet of gas were made in 1923 in the by-products ovens in the United States, and of this 65,000,000,000 cubic feet were distributed through city gas mains. This represents over one-half of the total coal gas made in all types of apparatus, the balance being made in various types of retorts. It is in this field that the by-product coke oven is having its greatest growth at present. The high grade gas and coke produced, and the other obvious advantages to be derived from bulk carbonization, are leading gas companies all over the United States to substitute by-product coke ovens for water gas operations and other less efficient and commercial types of carbonizing plants.

So far, there has been mentioned only coal gas, but there is another important kind, known as carburetted water gas. It is made from coke (or anthracite) by reactions with steam and oil at high temperatures. In general, water gas costs more to make than coal gas, but since the apparatus is less expensive and can be stopped and started easily whenever desired, it is valuable for meeting fluctuations in the demand for gas.

Gas is so bulky that it is not possible to store more than a few hours' supply. Instead, many companies store a portion of the coke which they produce and convert it into water gas in the winter time, when unusually large amounts of gas are being consumed. This is simply one more way in which coke contributes to our comfort.

Ammonia

In 1923, the by-product coke ovens of this country produced the equivalent of 1⅛ billion pounds of ammonium sulphate. When coal is coked, ammonia gas is driven out of the oven with the other gaseous products, and is recovered either in solution as ammonia liquor, or aqua ammonia, or is chemically combined with sulphuric acid to make white crystalline ammonium sulphate.

Probably every one has read something concerning the importance of fixed nitrogen, because of the wide publicity given to our war-time measures to relieve the nitrogen shortage. Nitrogen in the form of soluble compounds or protein food is necessary for the existence of all plant and animal life; it is the unstable cornerstone of every explosive from gunpowder to T. N. T., and in the form of ammonia it is the basic material which makes possible our refrigerating industries, and the large scale transportation and storage of perishable foodstuffs. Ammonia or ammonium compounds are put to numberless industrial uses, ranging from radio batteries to baking powder.

Benzols

From every ton of coal that is coked in a by-product oven, it is possible to obtain, chiefly from the gas, 3½ to 4 gallons of a volatile oil which somewhat resembles gasoline, and has been given the general name of benzol or light oil. When refined, it is suitable for use as a motor fuel. It is even more valuable than gasoline for this purpose, since numerous tests have shown that an automobile operated with benzol will develop considerably more horsepower with less fuel consumption. Unfortunately, the 80 million gallons of benzol produced and used as motor fuel in 1923, represented only a cupful in the tanks of this gasoline-mad nation, so that few will have the opportunity of using this high grade liquid fuel. Gas companies leave the benzol in the gas to add to its richness, and few but the coke plants owned by steel companies remove the benzols for sale.

Coal Tar

Slosson, in his intensely interesting book, "Creative Chemistry," has pointed out that until recently man could select and cultivate, but he could not create. If he wanted spices he sent to the East Indies, if he wanted a fever cure he sent to Peru. If he wanted indigo he had to send to India, and for attar of roses he went to Turkey. If he needed fertilizer he sent to Chile, or robbed the Guanao Islands of the Pacific. Man was not yet master of his environment. Across oceans and continents he labored to carry the dyes, drugs, perfumes and spices that he craved. They were often impure and mixed with dirt and fiber. The dyes were frequently dull and some of them none too lasting. Today, in Baltimore, a chemist can take the black, sticky, ill-smelling tar produced at Sparrows Point, and from this treasure chest prepare rich dyes, life-saving drugs, savory flavors and exotic perfumes. He can reproduce in a pure condition materials formerly available only in an impure state, and, most wonderful of all, he can create new and tremendously valuable substances that have never been known since the world began. In the rare and choicest products of nature, the chemist has proved his ability to compete and even excel.

Coal Carbonization in the Future

The endeavor of this presentation to this point has been to show the value to the present industrial world of the phenomenon of coal carbonization and the place which it holds in every-day existence. The question may be asked, "What place will it hold in the future?" The past ten years have seen truly marvelous strides in the technical and engineering developments. That the next decade will show even greater strides is the opinion of those who should know.

In the early part of this paper an effort has been made to demonstrate that while petroleum looms large in the matter of transportation today, and at this moment there is so much in storage and in process of production that it seems a veritable flood; this condition is due to foolhardiness and greed, rather than comomn sense and a proper regard for the future. If the estimates of authorities are of value, by the end of 1938 petroleum in the United States will have largely passed from the picture as a motor fuel. Where, then, are we to secure the means of continuing the use of the internal combustion engine on any such scale as we now know it? Doubtless many inventions will be brought forward to increase the efficiency of the present motor, such as the anti-knock material known as "Ethyl," now on the market. The use of this material will probably lead to high compression engines. But such things can only be expected to help offset the normal increase in consumption. The answer would seem to lie in coal. With the enormous quantities of this fossilized energy at our doors, surely some practical way of harnessing the giant will be found. At present, the answer seems to lie in one of the following directions:

(1) High Temperature Carbonization—producing tar, benzols and gas, the resulting coke being gasified and some way found to operate motor vehicles with this gas, perhaps making alcohol from the gaseous hydrocarbons.

(2) Low Temperature Carbonization—by this means securing the maximum amount of liquid products by destructive distillation and by cracking processes and constructive chemical processes, building up into liquid hydrocarbons, suitable for such use in large quantities.

(3) By the use of coke in the formation of steam for use in the steam-driven cars, supplementing the liquid products.

(4) By some treatment of coal itself which will construct from the coal, by the addition of gases under temperature and pressure, a large yield of built up petroleum from the coal.

It is impossible to see at this time what the answer will be or in what direction the development will take, but when one considers that no greater period remains than that which has passed since the beginning of the World War, unless estimates on petroleum supply are vain, it is apparent that it behooves some one to bestir himself.

Carbonization

But the subject is coal carbonization and it is necessary to return to this direct subject. Fig. 3 shows what goes on inside of a by-product coke oven and in effect what takes place in any carbonization process. The coal in a finely divided condition is allowed to fill up the space between the two heated walls. This coal becomes hot and when a temperature of approximately 750 degrees Fahrenheit is reached, the coal fuses and, in effect, boils. As the temperature rises above that point, the vapors set free by the heat begin to crack up. Many of these vapors are cracked into permanent gases; nitrogen compounds are dissociated in the coal and form ammonia. These pass out through the mass towards the heated wall,

which is the path of least resistance, carrying the vapors and gases, constantly being further dissociated, towards an off-take pipe. From a temperature of the walls of approximately 2,000 degrees Fahrenheit this boiling action proceeds in towards the center at about a rate of ½ to ⅝ of an inch per hour. The ebullition controls the temperature just as it does in boiling water. On the side towards the heat we find a gradually increasing temperature until the coke formed reaches the temperature of the wall. On the inside of the ebullitive zone, the temperature scarcely rises at all until the film has crept to its ebullition point. The higher the temperature of the

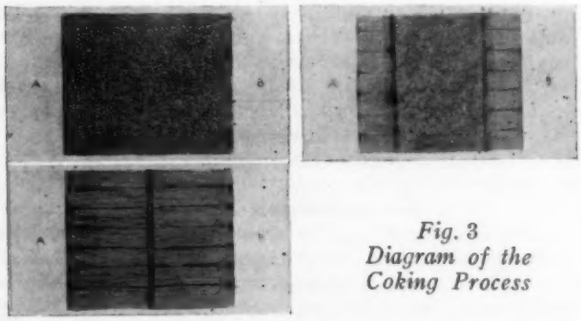


Fig. 3
Diagram of the Coking Process

vapors and gases reach on their way out, the greater the dissociation. Since the heat is applied from two parallel heated walls in a by-product oven, the ebullition ceases when the two meet in the center, and as soon as the center temperature has reached a sufficient height to complete the ebullition, the oven is ready to be discharged, or "pushed," and the oven refilled.

It is a wonderfully simple process on paper, but the art of building an oven structure so that it will stand the expansion and contraction stresses, so that the heating will be uniform, so that the gases will not become overheated, so that heat efficiency and economy is attained, is an art in itself. It is perhaps not overstating the fact to say that in this art the United States leads the world.

HOTEL AND RESTAURANT BUSINESS

(Continued from page 154)

designed to burn gas. Any appliance built to burn coal, whether it be a house heater, water heater, incinerator or cooking range, cannot be converted into a gas burning appliance, and give the high efficiency and be operated at as low a cost as one especially designed for the use of gas.

From observation and long years of experience, we have found that he chef's ideas as to what is required in making an appliance give the best results has in most cases been successful.

The Solid or Closed Top

For instance, some years ago several of the best chefs in New York stated they did not like the ordinary open flame gas ranges manufactured at that time as it required too much watching of the pots to keep them from boiling over, burning the food, and clogging up the burners. What they wanted, if they were to use gas, was a range constructed with a hot center fire under a solid or closed top, similar to a French top hotel coal range. They preferred this type for several reasons.

First, because it is the design of coal range that has been in use for many years past and the type the most trained chefs and cooks have been taught to use. Second, because it afforded better cooking conditions and enabled them to move pots and kettles to a series of graduated heats after the contents had been brought to a cooking temperature. Experience proved that if we hope to interest the exacting type of chef or cook this design of range is necessary.

In the past three years the improvements in construction, efficiency and economy embodied in heavy duty hotel ranges has been marked and it would be well for those interested in the sale of this class of appliance to become thoroughly familiar with the newer and improved types, so that only the very latest design be recommended to the prospective buyer.

Proper Instalaltion and Gas Supply

A very important factor in the installation and successful operation is to have proper size piping so that an adequate supply of gas as well as pressure is available at all times, and also that proper flues and ventilation be provided.

Many good gas installations have not been satisfactory for the reason that the proper supply of gas was not run to the equipment. This is sometimes due to the fact that the plumber or the kitchen equipment concern does not understand the local gas conditions. Therefore, in order to get the best results it is always wise for them to confer with the local gas company and have one of their engineers look into the requirements and his recommendations be followed.

Gas companies should be interested and willing to assist in helping others who have contracts to install gas equipment regardless of the fact that they did not sell the appliances. This kind of cooperation is beneficial to all concerned and is recognized and appreciated by the hotel men and other gas customers.

Free Maintenance

Some gas companies find it advantageous to give free maintenance and monthly or semi-monthly inspection of heavy duty appliances in their territory. This free maintenance service includes the cleaning and keeping the burners in proper adjustment, but does not include supplying repair parts, which are charged for at cost plus a percentage to cover handling charges, etc. This free service has several advantages for the gas company; not only does it keep the consumer satisfied, but it eliminates complaints coming into the office which have to be handled by the clerical force and go through the same routine as any other complaint. The service man in making his round of inspection, is very often

able to recommend the use of additional consuming appliances and to report the circumstances to the Sales Department.

Gas Rates and Restaurant Business

Believe it would be well where gas companies are revising their gas rates and intend to have a sliding scale of prices, that it be so figured that the hotel, restaurant, club, and institution would receive benefit over that of the ordinary domestic consumer and in cases where the consumption was sufficiently large, that they be considered in the same class as the large industrial consumer.

The reason for bringing up the question of gas rates for this class of consumer is the fact that several of the hotel associations throughout the country are giving this matter consideration and feel at the present time that the rates are too high and in some places excessive.

Recently, some of the best gas installations we have were considering going back to coal or putting in oil burners and in some cases are figuring on enlarging their electrical equipment so that electrical appliances could be used.

The Field for Heavy Duty Appliances

The field for selling heavy duty hotel and restaurant appliances should include hotels, restaurants, lunch rooms, tea rooms, delicatessen stores, retail bakers, clubs, prisons, schools, colleges, hospitals, manufacturing plants, insurance companies, banks, lodges, city, county and state institutions, army and navy barracks, large residences, etc.

To secure the business where heavy duty appliances are required it cannot be a hit and miss proposition, but has to be worked out in a systematic manner. There should be lists of cards covering the entire field, and these prospects should be called upon either four or five times a year or until they are eventually sold. Even after the first installation is made they still should be called upon to see if there is not additional equipment required and to see if their equipment is in proper working order.

Salesmen Should Be Well Informed

The salesman who calls on these prospects should be fully informed as to the working of the appliances, so that he may be able to explain all details to clients in his selling talk or to the one who is to operate the appliances. He should also know whether or not the burners on the appliances are properly adjusted and burning the required amount of gas for the work to be done.

It has been found that the gas company or equipment house who have a proper display of heavy duty appliances connected with gas that can be demonstrated to a prospective buyer is more successful in getting business of this kind than those who try to sell entirely from a catalog or photographs. The actual showing of the appliances in operation will close a sale quicker in almost every case, and more is accomplished in one showing of the appliances in operation than making a dozen calls on the prospect. Those who have a display are proving the value of it daily.

Industrial Kitchens

There is a class of business which has been developed in the past few years which has proven to be a valuable gas load, namely, industrial kitchens in such places as factories, department stores, insurance companies, and banks. Many of these have put in elaborate restaurant equipment for feeding their employees. In some cases the meals are served without cost to the employee and in others at a nominal sum which barely covers the cost of the food. In most instances the company have to make up a deficit at the end of the year which they are very glad to do as they have found it profitable.

The idea of establishments of this kind putting in equipment to feed employees works well for all concerned. In the case of the employees they are able to get good food gratis, or at a nominal cost in plasant surroundings. On the other hand, the employer limits the lunch hour to a shorter period, say three-quarters of an hour, instead of an hour. If there are a few hundred or thousand employees, and fifteen minutes' time is saved on each employee, it gives more actual working time in the office per day, and in a year's time would add many days of actual working time.

Don't Oversell Prospect

Considerable attention should be given in recommending the proper appliances for the class of work to be done, and it is advisable not to oversell the prospect. There are instances where five ranges have been sold where three with spreader plates between, workd to full capacity, would have cooked just as much food at a very much lower fuel cost per meal. In the average kitchen, if the five ranges had been installed, the cooks would run all five appliances whether they had need of them or not, whereas if they had only the three sections they would manage to do all their work. This, of course, does not apply to all cases, but to a big majority.

In most cases the cost of fuel is a secondary consideration, and more stress should be laid on the service and advantages of gas over that of other fuels.

The constant and consistent following up of prospects in a systematic manner is what really secures the business.

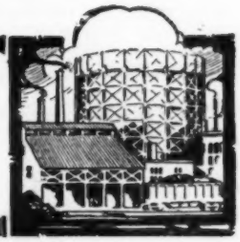
Lack of Definite Sales Plans Regrettable

In being called into many sections of the country to co-operate with gas companies and kitchen equipment dealers in promoting the sale of heavy duty gas equipment, the writer has had an opportunity to observe the efforts and methods pursued by many concerns in working for sales of this character, and will frankly and truthfully say in every case I have encountered where the dealer made the right sort of effort the customers were responsive and a fair share of business was received. However, I am sorry to say I have found very few companies who have had any organized plan of campaigning for the sale of heavy duty equipment.

This surely is regrettable.

It is an acknowledged fact that no one can reasonably hope to get any more out of a proposition than they are willing to put into it. If we hope to cover this end of our business in the right way and obtain anywhere near a maximum of results, we should be willing to put forth the time and effort to bring about this happy condition.

NEWS OF THE GAS INDUSTRY



A. G. A. Convention to Feature National Conference on Information Committee Work

Among the many good things in store for delegates and others who attend the forthcoming convention ot the American Gas Association at Atlantic City on October 12 to 16, one of the most interesting features will be the meetings devoted to the work of the State Committee on Utility Informaion.

This is the first time that any of the national utility associations has made such elaborate plans to bring the work of the state committees before its members at an annual meeting. Several months ago, in discussing plans for the gas convention, H. C. Abell, president, said that the state committee movement in all its various aspects should be featured at the October convention. Since then plans have been laid for a national conference under the auspices of the Publicity and Advertising Section, to be preceded by a luncheon given to the directors, their chairmen and prominent utility executives, and a contribution to the general program of the convention on Wednesday morning.

The first get-together meeting of the directors of the committees will be at the luncheon on Tuesday, October 14th. On this occasion opportunity will be afforded to the directors and members of the executive committees of the 28 state organizations to become personally acquainted with the leaders in the public utility industry. Questions of policy will be discussed at this meeting under the general title of "The Future of Public Information Work."

On Wednesday morning, October 15, at the general session of the convention two fifteen-minute talks will be made on the subject, "The Public Utility Information Committees and the Gas Industry of Tomorrow." A prominent utility executive will develop the subject from the standpoint of the executive. J. S. S. Richardson, director of the Pennsylvania Committee, will talk from the angle of the committee.

On the afternoon of the same day, the first of two sessions comprising the national conference will be held. In connection with these meetings there will be an exhibit of publicity and advertising work done by some of the committees. Illinois expects to show the results of three thousand public addresses on the utility business delivered in that state by its speakers' bureau. Pennsylvania will show its special convention news bulletins. Iowa will display its pamphlets, Georgia will show what it has done to attract industries to that state, and Michigan will illustrate its activities during Open House Week.

The programs for the national conference follow:

Wednesday Afternoon, October 15, 2 o'Clock

Opening remarks and roll call—F. L. Blanchard, chairman Publicity and Advertising Section.

Address—"The Purpose of this National Conference." H. C. Abell, president American Gas Association.

Address—"The Newspaper Contact. How Is It Accomplished? What Is Its Value?" Joe Carmichael, director of the Iowa Committee.

Brief discussions by directors.

Address—"In Eighteen Months, 2,514 Talks on the Utility Business Have Been Made in Illinois to 440,000 Persons. How It is Done." H. M. Lytle, vice-president Chicago Rapid Transit Companies; former associate director of the Illinois Committee.

Brief discussions by directors.

Address—"What an Information Committee Is and What It is Not. What It Can and Cannot Do for the Gas Industry." B. J. Mullaney, vice-president The Peoples Gas Light & Coke Company, Chicago.

Adjournment.

Thursday Afternoon, October 16, 2 o'Clock

Opening remarks and roll call.

Report of Nominating Committee.

Election of officers.

Address—"The Story the Public Ought to Know." Charles A. Munroe, chairman of the board, Laclede Gas Light Company, St. Louis, Mo.

Brief discussions by directors.

Address—"By-Products of the Committee Movement." P. H. Gadsden, vice-president The United Gas Improvement Company, Philadelphia, Pa.

Brief discussions by directors.

Address—"The State Committee Cannot Do It All." Earle W. Hodges, director Public Utility Information Committee of Arkansas.

Brief discussions by directors.

Address—"The Gas Man's Place in the Committee Movement." Oscar H. Fogg, vice-president Consolidated Gas Company of New York, New York, N. Y.

Adjournment.

The state committee movement was born in the gas branch of the public utility industry on April 1, 1919, when Samuel Insull organized the Illinois Committee and placed B. J. Mullaney in charge. Today there are twenty-eight committees operating in thirty-six states of the Union. All the committees furnish news services to the press and answer inquiries on the public service business by anyone interested. Nineteen committees have speakers' bureaus, and eighteen are carrying on active educational work in schools and colleges. Regular display advertising service is supplied by nine of the committees and all of them help companies when requested.

In commenting on the significance of the national conference at Atlantic City in October, Alexander Forward, secretary-manager of the association, will say editorially in the September issue of the "A. G. A. Monthly":

"Our pride of parentage because of the fact that the gas industry gave birth to the state committees on public utility information would not exist were it not justified by the record of these committees. Our Executive Board and the gas companies have, along with other branches of the public service, given the movement continuous support.

"I do not hesitate to say that public relations work has received its greatest impetus from these committees. It is their duty to give to the American people the true story of the public service. They receive the direction of the ablest executives and of men who have besides the local or sectional information with which to adapt the national viewpoint.

"The active men in the field deal in facts. The modern newspaper man, beset as he is every minute from all sides with those who desire to use the press to tell their story, sees more quickly and more clearly than anyone else the difference between news and propaganda. The chairmen of our committees not only know this but in addition they are selected because they are the type of men who tell the truth. They have the confidence of the editors and other avenues of public information in the thirty-six states where the twenty-eight committees on public utility information operate. We would have at best a very poor tie-up between national organizations and the local field but for these committees.

"Those who seek to make public utilities a target for their own ends formerly had the fields of publicity to themselves. They have it no longer.

"Recognizing the vital nature of this activity, the American Gas Association has arranged to give a leading place on its program during the Annual Convention in Atlantic City in October to a national conference on public utility information. Many of the strongest executives in the industry will be present and some of them will give the conference the benefit of their views and experience by means of addresses while others will take part in the discussions which will follow. The information men in the field will be expected to take full part in all discussions.

Gas Used for Brick Making

Pomona, Cal.—For the past six weks the Pomona Brick Company has been using natural gas in brick manufacture, instead of crude oil formerly used by the concern.

E. G. Stahlman, manager of the company, this morning announced that the new installation was quite satisfactory and a considerable improvement over former methods.

"Natural gas is more convenient, and is maintained at a relatively permanent price," said Mr. Stahlman. "It does the work at a lower figure than other fuels."

With an annual output of five million bricks, the company will use in the next twelve months 80,000,000 cubic feet of gas. Every time a kiln is burned, containing one-half million bricks, eight million cubic feet of gas fuel is required.

Practically all the larger manufacturers in and around Pomona have adopted natural gas for fuel, it was stated by officials of the Southern Counties Gas Company, the number of users including the Pomona Valley Ice Company, the Pomona Tile Company, both laundries, all the packing houses, and 90 per cent of the irrigating companies.

U. G. I. Plan $600,000 Gas Mains

Philadelpha, Pa.—Upon approval by the Public Service Commission, twenty miles of gas mains are to be laid at a cost of $600,000 in the northeast section of Philadelphia.

Brooklyn Borough Gas Co. Reorganized

The Brooklyn Borough Gas Company has been reorganized as a result of the acquisition of a majority of the common stock by Frank T. Hulswit, president of the United Light & Power Company. Mr. Hulswit, who lives at Grand Rapids, Mich., was elected president; Miss Mary E. Dillon was reelected vice-president and general manager, and other officers were elected as follows:

Walter G. deBerg, vice-president; Clayton E. Platt, secretary and treasurer; A. Vermeer, assistant secretary and assistant treasurer; B. L. Stowell, assistant secretary, and L. H. Heinke, assistant treasurer. The officers also are directors.

The company's gross earnings were $1,609,900 for the 12 months to June 30, an increase of $175,100 over the preceding year.

J. Carroll Aaron Joins Magee Furnace Co.

J. Carroll Aaron has recently accepted a position on the sales staff of the gas department of the Magee Furnace Company of Boston, Mass.

Mr. Aaron is well known in the gas industry as he has been sales manager with the Suburban Gas Co. of Chester, Pa., from 1902 to 1906, Wilmington Gas Co., Wilmington, Del., for three years, and the Peoples Gas Light Co. of Manchester, N. H. He also represented the Welsbach Co. of New England for several years.

New Officers of Pacific Coast Gas Association

The 32nd Convention opened in Portland, Oregon, Aug. 18, 1925, with splendid attendance, numbering between three and four hundred. The following were elected: President, F. J. Schafer, general manager Southern Calfornia Gas Co., Los Angeles; vice-president, W. S. Yard, vice-president Pacific Gas & Electric Co., San Francisco; treasurer, D. G. Martin, Pacific Gas & Electric Co., San Francisco; secretary, Clifford Johnstone, San Francisco; directors, E. L. Hall, general superintendent Portland Gas & Coke Co., Portland, Oregon; D. J. Young, consulting engineer Eyllesby Engineering & Management Corp., Tacoma, Wash.; J. E. Kelley, superintendent Gas Dept. Western States Gas & Electric Co., Stockton, Cal.; H. M. Crawford, sales manager Pacific Gas &Electric Co., San Francisco; H. L. Masser, gas engineer Los Angeles Gas & Electric Corp., Los Angeles; W. M. Thompson, president Reliance Manufacturing Co., Pasadena, Cal.; G. P. Egleston, manager H. R. Basford Co., San Francisco.

Ohio Is Consuming Increasing Amount of Artificial Gas

Columbus, O.—Because of the diminishing natural gas supply, and the increasing demand for gas, the consumption of artificial gas in Ohio is growing.

This is shown by annual reports just made to the Ohio Public Utility Commission by the 15 artificial gas companies in the State, showing an increase in the number of customers last year of almost 10,000, bringing the total number up to 32,756.

The artificial gas industry, on the first of this year, had a total investment in the State of $8,362,174.03, an increase over the year before of $1,644,141.41. Operating expenses for these companies likewise increased during the year by $133,899.85, or a total operating expense of $1,858,802.63.

Taxes on these companies were more than doubled over the year before, they paying a total of $64,811.95 last year, while the year previous the figure was $27,888.44. The amount of taxes paid was $15,474.39 more than the amount of dividends declared. Dividends amounted to $49.337.56, with only 5 of the 15 companies declaring dividends.

The reports further show that the percentage of dividends on the total investment of all companies was only .59 per cent.

In the amount of artificial gas distributed there was an increase during the year of 139,976,040 cubic feet. bringing the total for the year up to 3.034.975.040 cubic feet.

Standard Gas Offers Common Stock Rights

Holders of common stock of the Standard Gas & Electric Company will be given valuable rights to subscribe to additional common stock of the company. The board of directors has authorized the issuance of additional common stock to the extent of one-fifth of the aggregate amount outstandng at the close of business August 24 next. The subscription price of the stock to shareholders of record August 24 will be $48. Shareholders may subscribe for additional stock at this price to the extent of one-fifth of their holdings.

Warrants specifying the amount of stock to which each stockholder will be entitled to subscribe will be entitled to subscribe under this privilege will be mailed on or about September 3 to holders of common stock of record at the close of business August 24. Warrants accompanied by payment in full must be returned to the office of the Standard Gas & Electric Company at 111 Broadway on or before September 23. The subscription privilege expires on that date and the warrants will be void thereafter.

To Sell Boston Gas Stock

Boston Consolidated Gas Company will sell in one lot 40,000 shares of 5½ per cent cumulative preferred stock, par $100, at not less than par by public auction at the auction room of R. L. Day & Co., Boston, September 2. The sale was recently authorized by the Department of Public Utilities, Massachusetts. The stock in callable as a whole or in part at 105.

Moody Gas Co. Changes Name

Houston, Tex.—The name of the Moody Gas Company, which is to supply Houston with natural gas, has been changed to the Houston-Gulf Gas Company, according to W. L. Moody 3rd, one of the directors.

Mr. Moody announced that the company has acquired the gas properties of W. M. Stephenson of San Antonio, comprising more than 42,000 acres in Refugio, Live Oak, McMullen and Webb Counties, on which nine gas-producing wells are now supplying the Southern Natural Gas Company's line to San Antonio.

The company also secured the contract from the Southern Natural Gas Company by which the Southern agrees to take gas from any of the properties within a radius of 100 miles of Three Rivers. This gives the Houston-Gulf Gas Company an opening into the San Antonio market in the event the company should have more gas than it needs for its Houston line. Purchase of the Stevenson properties was to give an additional supply of gas for Houston.

Gas Engineers Solve Distribution Problem

Rochester, N. Y.—Engineers superintending installation of the new gas mains of the Rochester Gas & Electric Corporation have demonstrated anew the axiom that to the ingenious nothing is impossible. Confronted with the problem of serving residents of both sides of the streets in the village through gas mains running along only one side, they resorted to the simple expedient of driving the service pipes through the soil underlying the highway instead of the costly method of digging a trench across the road.

To acocmplish the unusual feat, a sieve-like thimble was placed on the driving end of the pipe. The propelling force was supplied by a compressed air pavement breaker. Four of the pipes were driven through the twenty feet of ground beneath the road in the individual times of 1½, 2, 6 and 11 minutes. More than a hundred such driving services will be made, according to J. F. Haftenkamp, superintending the work. They are placed about three feet under the surface of the road, somewhat below the frost line.

Hope Gas Company Secures 30 Year Franchise

Weston, W. Va.—A thirty-year franchise granting the Hope Natural Gas Company the right to use the streets of Weston to operate a plant for supplying this city with natural gas has been passed by the City Council.

The schedule of rates granted by the Public Service Commission is a fifty cent readiness to serve charge and fifty-two cents a thousand cubic feet rate for both homes and factories, with a two cents a thousand discount.

The Hope company is successor to the Keener Oil, Natural Gas Company, a local concern.

Illinois Power & Light Corp. to Extend Distribution System to Cover Four New Districts

East St. Louis, Ill.—Construction of an eight-mile cross-country gas main from Peters Station west of Edwardsville and to supply service at Woodriver, Hartford, East Alton and Roxana is another big step of the Illinois Power & Light Corporation to build up its St. Clair-Madison County property. Gas for the new field will be produced through the East St. Louis plant and piped nearly 20 miles for distribution.

Work on the main will be begun within a few weeks. All of the field work has been completed by County Surveyor H. H. Werges of Woodriver over the line that will be followed. He has submitted his findings to W. A. Bertke of St. Louis, general manager of the gas department of the company's Southern Division.

At present the gas is sent through a ten-inch main from East St. Louis to Edwardsville. The main is amply large for years to come and the service will not be affected by the increased consumption. A branch has also been laid into Glen Carbon.

A tap will be made on the main several miles west of Edwardsville. The plan is to take as near a direct route as possible along highways, excepting at a few places. Farmers will be able to buy gas if they wish.

In a previous announcement Bertke said two gangs would be put to work, one at each end.

Unless something interferes, the main will be completed before bad weather. An agreement with city officials of the places provides that the plans for the distribution systems must be approved before work is begun on them. That work may be deferred until next spring.

Contracts Awarded

The U. G. I. Contracting Co. of Philadelphia is building a tar extractor to be installed at the East Station of the Washington Gas Light Co. and the Long Branch, N. J., plant of the General Engineering & Management Corporation. The Washington extractor will have a capacity of 6,000,000 cu. ft. The Long Branch extractor will have a capacity of 4,500,000 cu. ft.

Gas Rate Increased

Harrisburg.—An increase in gas rate from 60 cents net to 75 cents net a thousand cubic feet under new tariffs effective July 20, has been filed by the New Wilmington Gas Company, the Public Service Commission has announced. The borough of Volant and New Wilmington and a number of townships in Lawrence and Mercer counties are affected by the increase.

Connersville Blower Co. Issues New Bulletin

The Connersville Blower Co., Connersville, Ind., recently issued Bulletin 13 C, in which is described their Victor Rotary Positive Gas Pumps for exhauster and booster service in small gas plants and industrial installations. The action of this pump is positive whether pulling a suction on the line or boosting the pressure, and when equipped with the diaphragm regulator, which is also described in the bulletin, these pumps will automatically maintain a uniform pressure or suction.

A copy of the bulletin will be mailed on request.

Victory Rotary Positive Gas Pump

Gas Wins Another Test

After being blindfolded, employees of a Chicago store were given two cups of coffee, one made from beans roasted by gas, the other from beans prepared in the old-fashioned coke roasters. Every one of the employees, and there was a long line of them, declared the gas-roasted coffee the better of the two.

Not only has the gas roasted coffee a finer flavor, but twice as much of it can be produced in half the time required by the coke roaster.

Shur-Stop Valve Moves to Detroit

The Standard Peninsular Brass Works of Detroit, Michigan, have acquired the rights to manufacture the Shur-Stop Valves, formerly made by the Ajax Brass & Iron Company of New York.

The new arrangement is made to facilitate handling of the greater volume of business that has been recently built up.

United Light Unit Calls Stock

The United Light & Railways Company, principal subsidiary of the United Light & Power Company, has called for redemption on November 1, 1925, all of the outstanding 6½ per cent prior preferred stock of the company. The original issue was $5,000,000, of which a substantial amount has been exchanged for Class A common stock of the United Light & Power Company. The United Light & Railways owns 97 per cent of the common stock of the Continental Gas & Electric Corporation, and has large holdings of other utility securities.

Southeastern Power & Light

Bonbright & Co. are offering $10,000,000 of 6 per cent debentures of the Southeastern Power & Light Company, due in 2025, at 96½, to yield more than 6.20 per cent. These debentures will carry stock option warrants entitling the purchaser to buy at any time common stock of the company at $50 per share in the ratio of ten warrants for each $100 face value of bonds. The debentures are redeemable up to March 1, 2020, at 110 and thereafter at their face value. The proceeds of the sale will be used for the retirement of the $7,500,000 of 6 per cent notes now outstanding and for other purposes.